

## **AREA RULING FOR VERTICAL STABILIZERS**

John M. Morgenstern

Alan E. Arslan

Garret Moose

### **ABSTRACT**

A vertical stabilizer is configured to minimize the rate of change of cross-sectional area of the vehicle or device to which the vertical stabilizer is mounted. One or more “waisted” areas can be included at the tip and/or the root of the vertical stabilizers, as well as over the distance from tip to root of the vertical stabilizer. In some situations, a strake is mounted on the vehicle or device, such as an aircraft, and the vertical stabilizer is mounted to the tip of the strake. The strake can also be area ruled with one or more “waisted” sections at the juncture of the vertical stabilizer. Applying area ruling to the vertical stabilizer helps to further reduce the drag of the vehicle or device.